

## **CLAIMS**

### **WHAT IS CLAIMED:**

1. A method, comprising:

5 creating a plurality of metrology sampling rules;

assigning each of said plurality of metrology sampling rules a sampling weight value;

identifying at least one workpiece that satisfies at least one of said plurality of  
metrology sampling rules;

10 associating said sampling weight value for each of said satisfied metrology sampling  
rules with said identified workpieces that satisfy said rules; and

indicating a metrology operation should be performed when a cumulative total of said  
sampling weight values is at least equal to a pre-established trigger value.

15 2. The method of claim 1, wherein said plurality of metrology sampling rules  
have different sampling weight values.

3. The method of claim 1, wherein at least some of said plurality of metrology  
sampling rules have the same sampling weight value.

20 4. The method of claim 1, wherein said workpiece is a lot of semiconducting  
wafers.

5. The method of claim 1, wherein said metrology operation is at least one of a  
critical dimension measuring operation and a defect inspection metrology operation.

6. The method of claim 1, wherein said at least one workpiece is processed in a semiconductor manufacturing facility.

7. The method of claim 1, wherein indicating a metrology operation should be performed comprises indicating a metrology operation should be performed when a cumulative total of said sampling weight values for one of said plurality of metrology sampling rules is at least equal to a pre-established trigger value.

8. The method of claim 1, wherein indicating a metrology operation should be performed comprises indicating a metrology operation should be performed when a cumulative total of said sampling weight values for one of said workpieces is at least equal to a pre-established trigger value.

9. The method of claim 4, wherein said plurality of metrology sampling rules are based upon at least one of lot context information and lot history information.

10. The method of claim 1, further comprising reducing said cumulative total of said sampling weights by the value of said trigger value when there is an indication that said metrology operation should be performed.

11. The method of claim 1, further comprising reducing said cumulative total of said sampling weights by the value of said trigger value to a minimum value of zero when there is an indication that said metrology operation should be performed.

12. The method of claim 1, further comprising performing said indicated metrology operation.

13. A method, comprising:

5 creating a plurality of metrology sampling rules;  
assigning each of said plurality of metrology sampling rules a sampling weight value;  
identifying at least one workpiece that satisfies at least one of said plurality of  
metrology sampling rules;  
associating said sampling weight value for each of said satisfied metrology sampling  
10 rules with said identified workpieces that satisfy said rules; and  
indicating a metrology operation should be performed when a cumulative total of said  
sampling weight values for one of said plurality of metrology sampling rules is  
at least equal to a pre-established trigger value.

15 14. The method of claim 13, wherein said plurality of metrology sampling rules  
have different sampling weight values.

15. The method of claim 13, wherein at least some of said plurality of metrology  
sampling rules have the same sampling weight value.

20 16. The method of claim 13, wherein said workpiece is a lot of semiconducting  
wafers.

25 17. The method of claim 13, wherein said metrology operation is at least one of a  
critical dimension measuring operation and a defect inspection metrology operation.

18. The method of claim 13, wherein said at least one workpiece is processed in a semiconductor manufacturing facility.

5 19. The method of claim 16, wherein said plurality of metrology sampling rules are based upon at least one of lot context information and lot history information.

20. The method of claim 13, further comprising reducing said cumulative total of said sampling weights by the value of said trigger value when there is an indication that said metrology operation should be performed.

21. The method of claim 13, further comprising reducing said cumulative total of said sampling weights by the value of said trigger value to a minimum value of zero when there is an indication that said metrology operation should be performed.

22. The method of claim 13, further comprising performing said indicated metrology operation.

23. A method, comprising:

20 creating a plurality of metrology sampling rules;

assigning each of said plurality of metrology sampling rules a sampling weight value;

identifying at least one workpiece that satisfies at least one of said plurality of metrology sampling rules;

25 associating said sampling weight value for each of said satisfied metrology sampling rules with said identified workpieces that satisfy said rules; and

indicating a metrology operation should be performed when a cumulative total of said sampling weight values for one of said workpieces is at least equal to a pre-established trigger value.

5           24.     The method of claim 23, wherein said plurality of metrology sampling rules have different sampling weight values.

          25.     The method of claim 23, wherein at least some of said plurality of metrology sampling rules have the same sampling weight value.

10           26.     The method of claim 23, wherein said workpiece is a lot of semiconducting wafers.

          27.     The method of claim 23, wherein said metrology operation is at least one of a critical dimension measuring operation and a defect inspection metrology operation.

15           28.     The method of claim 23, wherein said at least one workpiece is processed in a semiconductor manufacturing facility.

20           29.     The method of claim 26, wherein said plurality of metrology sampling rules are based upon at least one of lot context information and lot history information.

          30.     The method of claim 23, further comprising reducing said cumulative total of said sampling weights by the value of said trigger value when there is an indication that said metrology operation should be performed.

31. The method of claim 23, further comprising reducing said cumulative total of said sampling weights by the value of said trigger value to a minimum value of zero when there is an indication that said metrology operation should be performed.

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32. The method of claim 23, further comprising performing said indicated metrology operation.